

PROTOCOL FOR: Open Heart Surgery: Care of the Immediate Post-Operative Patient

POLICY: Patients will be cared for in the ICU during the immediate Post-operative period. After extubation and when hemodynamically stable, they will be transferred to Cardiac Step-Down Unit.

DESIRED  
PATIENT OUTCOMES: 1. Patient will experience minimal/no complications related to CABG surgery.  
2. Patient will achieve maximal level of comfort during the post-operative period.

CLINICAL  
ASSESSMENT  
AND CARE:

A. PATIENT ARRIVAL

1. The primary RN will take report and initial orders from the Anesthesiologist in conjunction with ICU house staff.
2. The RN assigned to help the primary RN will:
  - a. Connect patient to the monitoring system.
  - b. Connect chest tubes to wall suction.
  - c. Note type and rate of intravenous infusions, isolate volume line.
  - d. Validate respiratory settings on ventilator with respiratory therapy.
  - e. Attach warming apparatus.
  - f. Autotransfusion per MD order.

B. INITIAL POST-OP ASSESSMENT

To be completed within 15 minutes of arrival to ICU:

1. Perform a brief physical assessment and validate the status of the following with the physician/house staff.
  - a. Cardiovascular Status:
    - 1) Obtain full set of vital signs.
    - 2) Obtain a cardiac profile and verify waveforms.
    - 3) Verify EKG rhythm, verify evidence of pacer capture if appropriate.
    - 4) SVO<sub>2</sub>//CCO per oximetric Swan-Ganz catheter
    - 5) Note amount/quality of chest tube drainage.
    - 6) Note quality of peripheral pulses, temperature and color of extremities.
    - 7) Demand pacemaker settings.
  - b. Respiratory Status:
    - 1) Check ETT size and position.

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- 2) Auscultate bilaterally for breath sounds, note presence of adventitious breath sounds.
- 3) Obtain O<sub>2</sub> sats via probe.
- 4) Obtain ABG, and MVO<sub>2</sub> per MD order.
- 5) Note peak pressures, expiratory volumes and minute ventilation on current vent settings.

c. Neuromuscular Status:

- 1) Validate LOC.
- 2) Check for pupil reactivity.
- 3) Check for quality and quantity of motor response.
- 4) Identify type and time of last dose of anesthesia, narcotic or paralyzing agent used.

d. Genitourinary Status:

- 1) Measure urine output.

To be completed within 60 minutes of arrival:

1. Perform a brief physical assessment and validate the status of the following with the physician.

a. Integumentary Status:

- 1) Note presence and characteristics of wound(s):
  - a) chest
  - b) legs/arms - check ace bandages per MD order
- 2) Note presence and characteristics of exit site(s):
  - a) catheters
  - b) drains
  - c) pacemaker wires
- 3) Assess pressure points for erythema/potential points of break down.

b. Gastrointestinal Status:

- 1) Check bowel sounds.
- 2) Verify placement of N/G tube, if applicable. Attach to wall suction per MD order.

C. INITIAL POST-OP CARE:

1. To be done jointly by primary RN and helper RN within 30 minutes of arrival.
2. Review Post-operative orders, clarify as needed.

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3. Obtain 12-lead EKG and chest x-ray as per MD order.
4. Draw STAT blood, per MD order.
5. Titrate intravenous medication solutions according to MD parameters and based on patient's weight.
6. Initiate measures to warm patient.
7. Obtain cardiac profile, if applicable.

D. ONGOING ASSESSMENT

1. Obtain vital signs every 15 minutes for 4 hours or prn, every 30 minutes for 4 hours, then every 1 hour until stable.
  - a. Obtain core or rectal temperature every 4°.
  - b. Discontinue warming measures when temperature reaches 98.6° F.
2. Obtain Cardiac profiles as per Hemodynamic monitoring protocol and as per MD order. Evaluate need for volume, medications or withdrawal of medications.
3. Monitor respiratory status as per Ventilator protocol. Initiate Weaning Protocol when appropriate.
4. Monitor temperature of extremities, color, capillary refill, presence of edema, quality of pulses, and motor, function and sensation every 4°.
5. Monitor I+O every 1°. Assess need for diuretic therapy in collaboration with house staff.
6. Monitor chest tube drainage every 15 minutes for initial 1-2 hours, then q1-2 hour for 24° then every 2-4° until discontinued. From post-op hour 2-24, drainage should decrease to less than 30cc/hour. CT may be discontinued on post-op day 1 when CT output less than 80cc for 8-12°.
7. Monitor neuro status every 1° till stable, then every 2°. Reorient patient to time, surroundings and person as appropriate.
8. Check wounds, pacer wires and dressings every 2°.
9. Assess bowel sounds every 4° while intubated, monitor for flatus.

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10. Assess heart sounds every 1-2°, x6-8 hours, note any additional sounds or new murmurs. Then assess heart sounds q2-4° after this. Assess more frequently if the patient develops untoward changes in vital signs or significant changes in chest tube output.

11. Report the following symptoms immediately to the MD:

- a. CT drainage > 100cc/hr
- b. Sudden onset or change in:
  - 1) EKG rhythm
  - 2) C.O. (outside of MD parameters)
  - 3) Systolic blood pressure < 90 or > 140mm Hg
  - 4) MAP < 60mm Hg
- c. Extreme shivering
- d. Loss of swan or arterial line
- e. Extreme agitation despite medication
- f. Any sudden or dramatic change in neuro status
- g. Poor ABG's or drop in O<sub>2</sub> sat from baseline
- h. Dehiscence of wounds

12. Report any of the following promptly to the MD (within 30 minutes):

- a. Any evidence of CHF
- b. Decreased urine output < 30cc/hr
- c. T > 102° F
- d. Saturation of chest and/or graft dressing within a short time span (< 1 hour)
- e. HCT < 27

E. ONGOING PATIENT CARE

1. Respiratory:

- a. Continually monitor SaO<sub>2</sub> sat via probe.
- b. Obtain ABG's per MD order.
- c. Wean from ventilator as per protocol.
- d. Turn, cough and deep breathe every 2°.
- e. Post extubation, initiate Respiratory Care Protocol.
- f. Incentive spirometer every 1-2° while awake, and PRN post-extubation, per MD order.
- g. Assist patient in use of pillows to splint incision while coughing.
- h. O<sub>2</sub> per MD order after extubation.

2. Cardiovascular:

- a. Maintain pacer wires insulated and grounded, per MD.
- b. 12-lead EKG and chest x-ray as per MD order.

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3. Nutrition:

- a. Remove NG tube post-extubation unless gastroepiploic graft.
- b. Maintain NPO until extubated.
- c. When extubated, progress diet as per MD order.

4. Neuro:

- a. Provide sedation/pain medication as appropriate.

5. Fluid/Electrolytes:

- a. Replace electrolytes as per MD orders.
- b. Obtain lab tests as per MD orders.
- c. Weigh patient daily, if ordered by M.D.

6. Mobility:

- a. Turn side-to-side q 2 hours.
- b. Dangle @ bedside when stable, then out of bed with assist BID when extubated and Swan-Ganz catheter removed.

- PAIN MANAGEMENT:**
1. Assess patient every 1-2 hours concerning presence of discomfort and characteristics:
    - a. Duration of pain
    - b. Quality (0-10 scale if applicable)
    - c. Location
    - d. Radiation
    - e. Aggravating/alleviating factors
    - f. Quantity
  2. Compare and contrast previous angina characteristics versus incisional pain, if applicable.
  3. Utilize positioning and support techniques to promote patient comfort, e.g., splinting, pillows, etc.
  4. Offer pain med. as needed, per MD order, to achieve patient's identified pain level.
  5. Institute alternative methods for distraction as appropriate, i.e., guided imagery.

- WOUND CARE:**
1. Keep dressing clean and dry, and aseptically redress wound. After 24 hours, open to air if there is no drainage.

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2. Assess for S/S of wound infection:
  - a. Spreading erythema
  - b. Superficial drainage
  - c. Sternal instability (grating or clicking)
  - d. Excessive incisional pain
  - e. Fresh dehiscence
  - f. Spiking fever
  - g. Purulent drainage
  - h. Positive blood cultures
  - i. Marked leukocytosis
  - j. Signs of systemic sepsis
3. Apply occlusive dressing over CT site when CTs discontinued, x 24°, then D/C.

- PATIENT TEACHING:
1. Review with patient/family availability of pain meds, how often patient can receive them.
  2. Instruct patient on cough, deep breathing, exercises, and need for frequent reinforcement.
  3. Prepare patient/family for eventual transfer to CSDU.
  4. Institute cardiac rehab teaching as per protocol; care path/ educational booklet.

APPROVAL: ICU Standards Committee  
Nursing Standards Committee

EFFECTIVE DATE: 10/94

REVISION DATES: 3/96, 5/97, 6/97, 3/00